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ABSTRACT

Learning-disabled students in an after-school program were provided with remedial instruction using precision teaching. The instructional program sought to increase performance of five students (grades 4-8) in specific academic skills by 50%. Skills included, among others, spelling, capitalization and punctuation, reading, and multiplication. The teacher pinpointed areas of weakness for each student, developed enabling activities to aid in skill acquisition, and administered and charted daily probes. It is concluded that students made progress in their regular classroom as a result of skills learned in this program. The teacher increased her knowledge of academic methods and materials and behavioral management techniques. Appendices include sample probes, logarithmic charts, performance standards, task sheets, description of instructional methods, an interest inventory, sample key cards with associative clues, contract, student profile charts, and pre-tests and post-tests. (23 references) (JDD)

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THE USE OF PRECISION TEACHING WITH LEARNING DISABLED STUDENTS

by

JUDITH LEE MESLER

A Practicum Report
submitted to the Faculty of the Center for the
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fulfillment of the requirements for the degree of
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Abstract

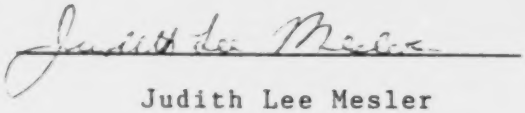
The Use of Precision Teaching with Learning Disabled Students

Mesler, Judith Lee, 1987: Practicum Report, Nova University, Center for the Advancement of Education. Descriptors: Precision Teaching/Charts/Corrective Feedback/Direct Continuous Monitoring/Drill/Fluency/ Frequency/Individualized Instruction/Learning Strategies/Motivational Strategies/Setting Aims/ Meta-Cognition/Peer Tutoring/Self-Concept/Multisensory/ VAKT/Manipulatives/NIM/Prompts/Modeling/Pre-Service/ In-Service/Mastery Learning/Phonetics/Reading Comprehension/Mathematics Instruction

This writer devised and implemented an individualized educational program to remediate academic difficulties experienced by learning disabled students. Precision teaching was used as a method of evaluating the students' progress in the program. The practicum took place in a private after school setting run by a university in South Florida. Students attended the program twice a week for an hour. The writer's goals were to increase the student's academic functioning by 50 percent as measured by precision teaching, to increase this writer's knowledge of academic methods and materials and knowledge of behavioral management techniques by 100 percent as measured by pre and posttests. Daily charts provided a visual display of each student's progress. This writer's increases from the pre and posttest were 100 percent in behavioral management and 143 percent in academic methods and materials. The appendices include: sample probes, charts, suggested standards for performance, task sheets, Neurological Impress Method, Kina writing, interest inventories, key cards, contracts, profile charts, author's pre and posttests.

Authorship Statement

I hereby testify that this paper and the work it reports are entirely my own. Where it has been necessary to draw from the work of others, published or unpublished, I have acknowledged such work in accordance with accepted scholarly and editorial practice. I give this testimony freely, out of respect for the scholarship of other workers in the field and in the hope that my own work, presented here, will earn similar respect.



Judith Lee Mesler

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Chapter I

Purpose

The setting for this practicum was a private after school program, run by a university in South Florida. The students were referred to the program by their classroom teacher, school psychologist, or contact was initiated by the parent.

Students were seen twice a week in hourly sessions over a 16-week period. This teacher worked with a total of six students during that time with two students an hour.

The primary aim of the program was to increase performance in specific academic skills by 50 percent using precision teaching. To determine what skills each child needed to work on, this teacher spent the first several sessions assessing the child's strengths and weaknesses, using criterion referenced tests and the county's established minimum basic skills as a guideline. This teacher also conducted parent and classroom teacher interviews, reviewed records and

significant testing, and administered interest interviews.

Based on this information areas were pinpointed for remediation. A determination was made as to what activities might be successful with each student and what factors might act as motivators and/or reinforcers.

The students this teacher worked with were in grades four through eight.

Alex was in sixth grade in a middle school. Alex had been attending the program for six months due to a severe reading and written language deficit. Both areas were three years below grade level. In mathematics he was close to grade level. Alex was an outgoing and sociable young man. He was aware of his difficulties and continued to work hard and tried to compensate for them. He had difficulties with visual perception and visual motor integration as measured on the Wechsler. He also had difficulty with auditory discrimination of sounds making phonetic learning difficult.

Alex's Objectives	Criteria for Mastery Per Minute
See Vowel Digraph Word/Say	20 words
Hear Dolch Words/Spell Level 3	15-20 words
See Words/Say Word Families	20 words
Read Paragraph/Edit Capitalization and Punctuation	10 marks

Chris was in fifth grade in a self-contained classroom. He was referred to that program due to concern over grade placement. Chris was a very friendly and sociable boy. He was eager to work with this teacher but worked quickly and impulsively and gave up easily. As measured on the WISC-R his conceptual thinking (the ability to think abstractly and reason problems out) was a significant strength. His numerical reasoning was low average and visual motor integration a significant weakness. The examiner of the WISC-R also noted his anxiety during the testing situation. The classroom teacher reported difficulty staying on task, working independently and following directions. Academically, reading comprehension and written language were areas of weakness.

Chris' Objectives	Criteria for Mastery Per Minute
See Picture/Write Story	
Capitalization and Punctuation	6 marks
Spelling	15 words
Describing Words	2 words
See Multiplication Fact/ Mark Product	20 digits
Hear Words/Spell Dolch Level 3	20 letters
Read Passage/Mark Fact Getting the Facts, Level D, Unit 2	10 facts

Bridget was in fifth grade in a self-contained classroom, attending a reading lab one-half hour a day. She was referred by her mother due to difficulty in reading comprehension and sentence structure. On the Woodcock-Johnson Test, deficits were present in vocabulary skills, short-term memory and spatial perception. Areas of strength were visual discrimination and blending sounds. In exercises involving sentence structure and paragraph organization she scored below average for her grade. She had difficulty with auditory short-term memory tasks. Bridget was easily motivated and willing to work with

this teacher. Her program focused on development of vocabulary, written language, and comprehension skills.

Bridget's Objectives	Criteria for Mastery Per Minute
See Picture/Write Story	
Punctuation and Capitalization	6 marks
Spelling	15 words
Describing Words	2 words
Read Passage/Mark Context Clue Level D	7 responses
Read Passage/Mark Main Idea Level D	5 responses
Read Passage/Mark Conclusion Level D	5 responses
See Fact/Mark Product	20 digits

David was brought to the center for testing by his mother because of a lack of progress in reading. David was attending sixth grade at a middle school. On the WISC-R David scored in the high average classification. His verbal skills were average as were abstract reasoning and short-term auditory memory. He evidenced a weakness in visual memory for designs. The Woodcock Reading Mastery Test showed a total reading level of 4.3 almost two full years behind grade level. His word attack skills and basic knowledge of pronunciation

rules were poor. David was enrolled in the program to work on those academic deficits.

David's Objectives	Criteria for Mastery Per Minute
See Picture/Write Story	
Capitalization and Punctuation	6 marks
Spelling	15 words
Describing Words	2 words
See Story/Read	
Catch the Wind, Level 5	50 words
Hear Words/Spell	
Catch the Wind, Level 5	80 letters
See Story/Capitalize and Punctuate	20 marks

Doug was referred to the program by his grandparents (who he lived with) because he was falling behind in his eighth grade placement. They were concerned with his lack of ability to work independently and complete assignments on time. Doug scored in the average classification on the WISC-R. He demonstrated strengths in attention and short-term auditory memory. Verbal performance was average. However, the examiner noted that verbal performance was best when instructions were short and limited. Visual motor skills were also average. Testing identified an

average student with no significant processing deficits but with some difficulty with basic skills, study habits, anxiety, and coping mechanisms.

Doug's Objectives	Criteria for Mastery Per Minute
See Picture/Write Story	
Capitalization and Punctuation	6 marks
Spelling	15 words
Describing Words	2 words
Read Passage/Mark Context Clue	
Specific Skills, Level G	20 responses
See Problem/Write Decimal to Fraction to Percent Form	30 digits
See Mixed Fraction/Write Common Denominator then Add and Subtract	30 digits
See Outline Form/Write Missing Parts	10 words

In addition to the students' objectives, the writer's practicum objectives were:

1. The teacher will demonstrate a 100 percent growth in knowledge of teaching methods and materials as measured by a pre and posttest.

2. The teacher will demonstrate a 100 percent point growth in behavioral management techniques as measured by a pre and posttest.

3. The teacher will improve each student's functioning levels by 50 percent using precision teaching.

Chapter II

Research and Solution Strategy

"All definitions of learning disabilities have two common elements: normal intelligence and underachievement" (Rosenberg & Sindelar, 1982:314). There are many ways of measuring the achievement levels in learning disabled students. The most common ways of testing have been ability testing and achievement testing. Ability testing has been found to lack directness and the question of whether or not deficiencies in underlying processes are responsible for learning problems is still debatable (Rosenberg & Sindelar, 1982).

Achievement testing is a more direct measure, however, norm referenced tests provide little information concerning placement. Criterion referenced tests where individual performance is measured against an absolute criterion of mastery is more direct and provides more specific information for instructional planning (Rosenberg & Sindelar, 1982). However,

criterion referenced tests cannot be used repeatedly to obtain continuous measures of the effectiveness of an instructional program.

To solve these problems and provide for repeated assessment of performance, precision teaching can be used. "Precision teaching does not dictate what should be taught or how instruction should proceed" (White, 1986:522). Rather, it represents an approach to the systematic evaluation of whatever instructional program a teacher might use (White, 1986).

"Almost universally educators are recommending the frequent evaluation of pupil progress" (Lerner, 1981:96). According to Lerner (1981) diagnosis should be interrelated parts of a continuous process. Diagnosis must be continuous, revised, and modified as the students themselves change through learning. This is especially true for learning disabled (L.D.) students. L.D. children have a discrepancy between what they are capable of learning and what they have achieved (Lerner, 1981). Because the learning tasks affected are wide ranging, the L.D. teacher needs a teaching program that requires continuous diagnosis and treatment. Precision teaching is an excellent method

for monitoring the success of L.D. students. This teacher employed it during this practicum study.

Precision teaching techniques have been used since 1965. The method was originally developed by Ogden Lindsley at the University of Kansas (Lovitt, 1983). It is made up of five components. First, the teacher must pinpoint or define the behavior selected for instruction (Lovitt, 1983). The teacher can collect background information on the students by interviewing the parents and classroom teacher. Using the state approved minimum basic skills as a guideline the teacher can determine what skills the child has attained. Based on this information the teacher can choose probes (a brief timed sample of a pupil's performance) to narrow down the specific areas in need from a broad problem area (Rawers, 1983) (Appendix A).

Once an area is pinpointed the behavior must be counted. In the area of oral reading, for example, the child reads aloud for one minute and the teacher counts the number of correct and incorrect words read (Lovitt, 1983).

The behavior is then charted on a logarithmic chart, and stated in intake and output channels

(Appendix B), for example, see-say vocabulary words, hear-write short vowel words (Obrand, 1985).

On a logarithmic chart the vertical lines indicate the days of the week. The horizontal lines are for the number of times a behavior occurs. Each line is not the same distance from the line below and above. The lines get closer together as the rates they represent increase (Haring & Schiefelbusch, 1976).

The rate of frequency is the behavior count divided by the number of minutes spent counting (Haring & Schiefelbusch, 1976). Accuracy is only one dimension of a behavioral performance. Fluency is important to show how many times the behavior occurs. The frequency of a behavior is plotted on the chart by a dot for the number of correct behaviors and an x for incorrect behaviors. Knowing the rate at which a child is learning helps determine whether instructional strategies should be modified (Rosenberg & Sindelar, 1982).

An advantage of precision teaching is this highly standardized uniform approach to monitoring and charting the student's progress (White, 1986). Daily charting allows both student and teacher to recognize

immediately when there is a problem or when the student has reached proficiency (Rawers, 1983). An important benefit from students charting their own progress is that they may stop competing with their peers and concentrate instead on competing with their own previous performance. The teacher benefits by visually seeing the effectiveness of her teaching methods and by being able to make better informed choices in methods and materials (Rawers, 1983).

Once the teacher has defined the objectives, she should establish aims (Lovitt, 1983). Aims are the performance levels necessary to assure generalization of a behavior. Aims can be determined by taking peer samples, using previous performance guidelines, or using an adult to child proportion formula (Rosenberg & Sindelar, 1982). There are also nationally established aims for certain objectives (Appendix C) (Hefferan, 1983).

Whatever method is used to reach the aim, it should be used as a continuous comparative measure (Rosenberg & Sindelar, 1983). Also important is that a specific date be set for reaching those aims. An aim

date will make it possible to tell if the student is progressing at an acceptable rate (White, 1986).

The fifth step in precision teaching is evaluating the student's progress and decision making. A student's progress is assessed daily on timed drills called probes (Rawers, 1983). The data from these probes are recorded and observed daily. As long as the performance is consistently above the expected progress line the existing instructional program is presumed to be adequate. When it falls below the progress line the instructional program may need to be changed (Rosenberg & Sindelar, 1982).

Once the goals have been defined and aims have been set for each child, the teacher decides on an individualized instructional program. The activities used are called enabling activities and they are written daily on a task sheet (Obrand, 1985) (Appendix D).

The task sheet helps the student organize his time and work independently. The student doesn't need to continually ask the teacher what to do next. The task sheet also aids the teacher in planning, keeping a

record for accountability and providing a way to record diagnostic comments (Obrand, 1985).

Enabling activities are chosen based on the student's phase of learning. At the acquisition level the aim is to build accuracy. The situation should be kept simple. Methods that are effective at this level are: modeling, demonstration, prompts, manipulatives, VAKT, color coding, associative clues, kina writing, NIM, and self-correcting activities.

During the fluency phase the aim is to build speed. "Simple repetitive drill is the most effective way of helping a child achieve fluency on a skill" (Obrand, 1985). Drill should then be followed by a positive reinforcer to maintain the child's interest.

The maintenance phase aims for high rates of speed and accuracy. Drill is still used to help maintain a skill. Overlearning is the most common procedure at this phase (Obrand, 1985).

At the application phase the child needs to learn when a skill will be useful and how to recognize the need for it. Real life situations; i.e. field trips, help facilitate the generalization and transfer of

learned skills. Learning strategies also provide for generalization and transfer of skills.

Modeling or demonstration can be used for both academic and nonacademic behavior (Lerner, 1981). For example, a model is provided for a student when the teacher says, "I like the way Sue is studying." In an academic area the teacher can model or demonstrate the correct way to solve a math problem then leave it on the board for the student to refer to.

A teacher usually begins instruction at the acquisition phase with a model. Examples of models are pictures, diagrams, flash cards, or a tape recorder (Haring & Schiefelbusch, 1976). Next, the teacher demonstrates; that is, shows the required response using the model. The teacher can use a signal or a cue which can be a word, gesture, or any other auditory, visual, or tactile signal to elicit the response. For example, the teacher may call the child's name, use a hand signal, or touch the child to cue the response at the appropriate time (Wallace & Kauffman, 1978).

If a child does not respond to a cue the teacher may use a prompt, which is when the teacher physically assists the child in performing the task such as

holding the child's hand to assist in drawing a figure (Wallace & Kauffman, 1978).

Next, drill and practice gives the student a chance to approximate the model by repetition until the acquisition or 100 percent correct response is achieved (Haring & Schiefelbusch, 1976).

Practice usually consists of applying skills in varied learning situations. The following methods can be used to provide practice.

Teaching word families makes use of associative clues (key cards), color coding, match to sample, the use of manipulatives, and self-correction techniques. The child makes his own key card with the name of one word family. A picture is drawn on the card to serve as an associative clue. He then uses a consonant letter tile and then uses a consonant letter tile and placing it on the key card attempts to make new words (manipulatives). He writes the new word on a card then turns it over and draws a picture (associative clue). Each day the student sees the picture, says the word, writes the word, then checks to see if the spelling is correct (self-correcting). Each new word family is written in a different color. Corresponding words use

the same color so the activity is also color coded (Appendix E).

"Self correction enhances pupil learning and self management" (Haring & Schiefelbusch, 1976:98). The above method may also be multisensory. Multisensory techniques involve all the senses. It is often called VAKT which stands for visual, auditory, kinesthetic, tactile (Deady, 1984). Grace Fernald was the pioneer of this technique (McCarthy & McCarthy, 1974).

Another technique involving a multisensory approach is kina writing. Kina writing can be used to establish an association between the printed and cursive word, to teach sight, vocabulary, and spelling words or to aid in the comprehension of word meanings.

Step 1 - The child copies the word on a 4 1/2" x 11" strip of white tagboard.

Step 2 - The child draws a picture on the back of each card to illustrate the meaning of the word.

Step 3 - The child connects the letters so they appear in cursive form.

Step 4 - The child traces over the word with crayon three times, quietly but aloud. Then the word is written on the chalkboard with eyes closed. Next,

the student checks the model and retraces it if it is incorrect.

Step 5 - The child files the card in a shoe box for use as flash cards that can then be used in daily drills (Appendix E).

NIM, neurological impress method, is a method to improve reading. Heckelman theorized that,

> . . current reading approaches allow a student to make mistakes which become learned. If students were exposed to accurate, fluid reading patterns the correct reading patterns would become deeply impressed and supplant the incorrect patterns. (Heckelman, 1986:411)

According to the studies, after 7 to 12 hours of instruction there is often a significant rise in reading ability.

The teacher sits slightly to the back and to the right side of the student. The teacher slides her finger under the words being read. Later the child uses his finger to accompany the readings. In this way the child's visual, aural, oral, and tactile senses are involved in the reading process (Hollingsworth, 1978). The student says the words the best he can. No concern is given to the comprehension, only to the flow of the reading. The goal is to establish a fluent, normal

reading pattern. The studies show that reading itself becomes a motivational factor as mastery increases (Heckelman, 1986) (Appendix E).

Short drills on basic math skills have been shown to be an effective method for increasing proficiency. Associa math is also an effective way to learn basic math facts. The student has color-coded key cards and corresponding flash cards for each family. The flash cards have a problem with the facts written vertically, horizontally, and with inverse relationships. The student will shuffle the cards, say the problem, write the problem, answer it, and check the key card. This is called see-say-write-check. The key cards act as prompts. As more families are introduced, sorted, and checked, the procedure becomes see-say-sort-write-check (Obrand, 1985) (Appendix E).

Brainstorming aids a child who has difficulty writing on his own. The teacher tries to get the student's thoughts flowing by asking who, what, when, where, and why questions. As a result of this discussion the child has a list of ideas, words, and worthwhile expressions to provide a starting point to begin writing. By giving direction, ideas are

stimulated and the student is more productive (Karlin & Berger, 1969).

When providing written language experiences, research has also shown that meaningful writing experiences with immediate feedback offers the most effective method of improving written language skills in L.D. children. L.D. children perform better on a pertinent activity than on worksheets. Proofreading their own work increases the likelihood that they will know the words and ideas in their own work and this aids in the generalization of skills (Poplin, Gray, Larsen, Banikowski & Mehring, 1980).

Learning disabled children often have difficulties in the application of task strategies. "Their low performance on many tasks is attributed to failure to employ spontaneously the requisite task strategies" (Treiber & Lahey, 1983). The learning strategies approach developed by Dr. Gordon Alley and Dr. Donald Deshler at the University of Kansas teaches students how to learn by teaching them learning strategies. Learning strategies are techniques, principles, or rules which enable a student to learn to solve problems and complete tasks independently. It teaches them how

to generalize their use of skills to a variety of settings (Lenz, Schumaker, Deshler & Beals, 1984:1) (Appendix E).

In addition to changing the enabling activities, the teacher can change the skill itself by a step back, slice back, or leap up. Step back is changing the skill to a pre-requisite skill. For example, if the child is having difficulty on CVC words the teacher can step back to work on short vowel sounds. A slice back is using one part of the skill as a new pinpoint. If the pinpoint is to read all short vowel sounds the teacher can slice back to just one sound such as short e (Hefferan, 1983).

Leap up is a good intervention for a reluctant learner. It moves the learner ahead to more difficult material. This is particularly helpful when the student is frustrated by flat or inconsistent learning (Eaton & Wittman, 1982). It is effective because the students may have become bored on their present task and this exposes them to new material.

Another important technique to consider is reinforcement. Reinforcement is a procedure through which a behavior is increased or maintained. Positive

reinforcement after a response increases the probability that response will re-occur (Haring & Schiefelbusch, 1976).

There are many types of reinforcers such as social, high strength, and token rewards. Social reinforcement in the form of praise, smiles, and compliments is very effective with older students. High strength reinforcers are following a task with an activity the child enjoys (Haring & Schiefelbusch, 1976). Some children benefit by an explicit statement of the relationship between their behavior and its consequences in the form of a contract (Wallace & Kauffman, 1978).

The parents can become involved with carrying out a contract at home. It is important to involve the parents in the child's learning. Frequent conferences and written reports can aid in communication. If we approach the parents with genuine interest and sensitivity we can obtain their cooperation throughout the child's school life (Karlin & Berger, 1969).

As mentioned earlier, precision teaching is not a way of teaching but a way of evaluating whatever strategies and curriculum one is using (White, 1986).

> The question is not so much whether precision teaching works but whether it can help teachers and learners discover new and better ways of helping themselves. The answer it would appear is yes (White, 1986:530).

Throughout this practicum program there was a need for inservice due in part to the diversity of the students and the abundance of new teaching materials and management techniques being presented. Research has shown that inservice that concentrates on individual student instruction is highly valued by the teacher (Brady & Morrison, 1985). There are usually three dimensions of inservice: (a) professional development, (b) the agency's expectations for the teacher, and (c) instructional needs identified by the teacher.

Inservice should include active involvement by the teachers and consists of review of relevant research, instruction in specific teaching methods and field tests of techniques and new materials (Brady & Morrison, 1985). This practicum experience provided opportunities to experience all of the above in weekly inservice meetings. It was due to the information provided in these meetings that this teacher was able

to increase her repertoire of methods, materials, and management techniques.

Chapter III

Method

Prior to the implementation of the practicum, this teacher was required to attend two pre-service workshops. At the first meeting the teacher was introduced to precision teaching and made aware of the responsibilities and expectations of the program, the advisor, and herself. This teacher had the opportunity to become familiar with timings, use of probes, and charting after demonstration and modeling by the practicum advisor. This teacher also took a pretest on her present knowledge of teaching methods and behavior management techniques.

At the second meeting this teacher was assigned four students and provided with background information, reason for referral, any pertinent testing information, and parent and teacher phone number.

Before meeting the students this teacher made contact with the students' parents and classroom teachers and conducted interviews. The interviews were

designed to provide information on the students' current level of function, learning style strengths and weaknesses, and yield information on the childrens' likes, dislikes, and behaviors.

Using this information this teacher narrowed the broad academic area into specific areas such as reading comprehension, or spelling. This teacher then used the county minimum basic skills requirements as a guideline as to where the child was functioning. This was determined by administering probes, usually one-minute timed samples in a variety of areas, until this teacher pinpointed five skill areas as areas of weakness.

Once the five areas were pinpointed this teacher developed enabling activities to aid in the acquisition of those skills. Regard to the students' preferred learning style was considered when choosing activities. Some of the students' files had the WISC-R tests available which were used to determine the students' process strengths and weaknesses. This teacher also administered interest interviews to the students to learn their likes and dislikes. The information was used to choose activities based on the students'

interests and to aid in choosing effective reinforcers (Appendix F).

The enabling activities were written on task sheets. The task sheets were written so that the students knew what they were expected to complete each day. It helped them organize their own time and take responsibility for their own learning. This teacher worked with two students an hour and would write the task sheets to balance independent activities with teacher-directed activities, thereby freeing this teacher to work with one student while the other worked independently. It cut down on interruptions because the students always knew what to do next. It was also reinforcing for the students to feel a sense of accomplishment as they crossed out each completed activity.

For this teacher the task sheet was used for writing pertinent comments for record keeping and as a lesson plan keeping the teacher organized and structured.

After the students completed the enabling activities they would take a probe, a one-minute or sometimes five-minute timed sample, to evaluate their

progress in that specific area. A more involved skill such as writing a paragraph required a longer period of time to identify their capabilities. Therefore, if the child had five pinpointed areas, he would take five probes daily. The results of the probe were recorded by the student on logarithmic charts (see Research). A dot signified correct responses and an x errors. The student connected the o's and x's daily.

The students were very encouraged seeing a daily visual display of their progress. This acted as a motivator as they attempted to beat their previous days' scores. If the correct response did not show a steady increase or if errors went up instead of down this teacher made a phase change. This was indicated on the chart by a dark vertical line on the day before the change was implemented. The change involved different methods, materials, type of instruction, general setting and/or changes in reinforcement and consequences.

A skill that all of the students had in common was written expression. To begin each session the students chose a picture or one was provided for them. The next step was to answer who, what, where, when and how

questions about the picture. These words were listed on key cards using each of the above headings. The words were discussed, sometimes spelled, and categorized as to which ones were describing words. The next step was to verbally tell a story about the picture using some of the words. The last step was to write their story. The key cards were left out as prompts (Appendix G). Providing a list of words to use in the story cut down on their frustration, organized their thoughts, and lessened their anxieties about spelling. Finally, they took a five-minute timed sample of their writing and were assessed on punctuation, capitalization, spelling, and describing words. The raw data was divided by five to equal a one-minute timed sample since logarithmic charts are designed to report data as rate per minute.

Alex had to have the skill sliced back to reading paragraphs and providing capital letters. It was too difficult for him to develop his own story due to his spelling weakness.

Alex needed much work at the acquisition phase of learning phonics. Word family flip cards and phonic dominoes were used to practice phonic sounds. Key

cards were made for short vowel sounds and color coded (Appendix G). Key cards were also used in learning word families as discussed in research. The word family activity incorporated associative clues, match to sample, the use of manipulatives, and self-correction.

Kina writing was used with Alex, Chris, and Bridget for their spelling and sight words.

NIM, the neurological impress method, was used with Alex and David. Alex started three levels below grade level and worked up to two levels below, while David started one level below and worked up to grade level.

David was very difficult to motivate. This teacher had to change the setting by separating David and other students. He was better able to concentrate when sitting alone. David also became overwhelmed by a long list on the task sheet so this teacher would group activities, but list it as one so he did not feel so overwhelmed. This teacher used the Primack Principle by following the less desired enabling activities with an acitivty he enjoyed such as a computerized academic task or a game with the teacher and peers. This

combined with frequent prompts such as calling his name or reminding him about the time and verbal praise served as reinforcers.

All of the students responded to praise or compliments and were motivated primarily by their own success. Many of the students wanted to show their parents their charts at the end of a session.

Bridget worked very well independently. This teacher chose a book about rock stars to use for comprehension. Her interest inventory revealed this desire and it proved to be very motivating. She would answer main idea and specific comprehension questions at the end of each chapter. The activity was self-correcting with an answer key in the back. She also used the workbooks in which each comprehension skill was practiced separately and spectra (a computer type game) to practice comprehension skills. Bridget improved her editing skills by reading and rating stories provided to her. She critiqued stories by attending to the lack of ideas, run-on sentences, and misuse of capitalization and punctuation. In essence she was the teacher correcting the work and it proved to be very motivating. She also used key cards for use

in punctuation especially in the use of quotation marks (Appendix G).

Chris needed constant praise and teacher intervention to keep him motivated. Stickers were given for each completed activity initially and cut back to receiving stickers only for a completed task sheet. Key cards were color coded and used for learning short vowel sounds. Kina writing was used for spelling words taken from his current reading book. In this way the words were more meaningful to him.

In reading, prompts were used to aid in recalling 15-20 facts from a story. A short story was read aloud by this teacher to Chris. At the end of the story he was given one minute to state as many facts/opinions from the story as he could. If he was unable to do so, this teacher would begin prompting such as, "How do you think . . .? What happened next?" etc. This encouraged him to make inferences and predict outcomes as well as remember facts.

Chris' mother had asked for help in completing assignments at home, so this teacher drew up a contract to be used by Chris and his mother. She was concerned that he had not completed his homework when she arrived

home from work and also that he was calling her too frequently at work. Together we decided on rewards such as pizza and GI Joes, that he could earn for completing his work, and consequences such as losing garbage pail kid cards for calling too frequently and for not completing his homework (Appendix H).

In the area of math, flash cards were used for drill and practice on a daily basis. Doug also used drill to facilitate overlearning of the multiplication and division facts. This was done with flash cards for five minutes daily and followed by a one-minute timed test.

Bridget and Chris used associa math on the multiplication facts to provide additional practice. The tables providing the most difficulty were the four, seven, and nine tables. They made flash cards for each family and a corresponding key card. All of the cards were shuffled together, read, answered, matched to the key card and written down. The student with the most correct answers at the end of the game won and was allowed to choose a free activity to play.

Doug was able to complete most activities after demonstration and modeling by the teacher. He had the

ability to learn new concepts quickly. He lacked strategies to keep him on task and organized, to complete assignments on time, and to study for tests.

Due to the length of time it takes to properly implement learning strategies, this teacher chose to use them as guidelines.

Doug learned to outline a paragraph. This skill helped him to organize his notes and study from a book for a test. He learned how to plan ahead by using a date book and scheduling time for each assignment. He learned how to write each assignment down on a daily basis and cross it out when he completed it. All simple techniques but ones he needed to learn to become better organized.

This teacher also used Doug to do peer timings and to instruct some of the younger children. This helped to improve his self-image.

This teacher stayed in touch with the parents and teachers by phone. The parents were provided a written report on their child's progress at a parent teacher conference at the end of the eight-week session.

At this time a profile sheet was provided that demonstrated the student's growth in all five areas in a percentage form (Appendix I).

Using the logarithmic chart provided a visual display of the student's progress that was more effective in communicating results than a standard report card.

At the completion of the program this teacher took a posttest on teaching and behavior management techniques. The teacher was informed on the various techniques at weekly inservice meetings. The practicum advisor distributed learning packets describing new methods and activities. At each session the teachers were asked to give examples and ask questions to be sure they understood the new activities. The advisor would also give the teacher feedback on her use of methods, materials, and behavior management that she had observed the teacher using in the classroom.

Chapter IV

Results

Throughout the implementation of this program student progress was recorded on logarithmic charts. At the conclusion of an eight-week period all data was summarized and displayed on profile charts. There are seven columns to a chart.

The first column states the pinpointed skill and levels or series used. The next column states the criteria for mastery per minute. The third and fourth column state the number of correct and incorrect responses on the skill prior to implementation, and the fifth and sixth column state the number of correct and incorrect responses following implementation.

David achieved mastery in oral reading. NIM was very effective and motivational to David. He tried to beat the previous days' scores and would ask to re-do a timing if he had not met his goal. He also reached mastery in spelling words from his reading book using kina writing, drill, and practice. He also improved

using vowel key cards and phonics workbooks to help build a stronger foundation in phonics so he could discriminate between sounds when he heard them.

David did not achieve mastery in writing a short paragraph but made excellent improvement in his ability to correctly punctuate and capitalize words in sentences. He also went from using zero to 12 adjectives in a paragraph. Brainstorming was the most effective means of enabling David to develop better paragraphs and also the use of a picture to act as a prompt for providing ideas. Another effective way of improving capitalization and punctuation was to provide a sheet that omitted capitals and punctuation. David would then correct it.

Alex achieved mastery in learning irregular vowel sounds using a manipulative matching pictures to sounds. This was more motivational than a worksheet and it was timed. Alex responded to verbal praise and baseball cards as reinforcement but more importantly he was intrinsically motivated by his own success and loved to beat his own scores.

He also achieved mastery in spelling sight words and reading word families. Much drill and practice

with flash cards was used successfully, as were key cards and multisensory techniques such as kina writing and using letter cubes to form words. Associative clues such as a picture on a key card to remind him of the sounds were very effective with Alex.

He had a great deal of difficulty writing a paragraph independently, even with brainstorming and models left out to aid him. Therefore, the task was sliced back to correctly punctuating and capitalizing a paragraph in which he doubled his performance.

Bridget almost reached mastery on her multiplication facts. Drill and practice with flash cards and the use of associa math were used successfully. She worked with Chris using associa math cards.

Bridget liked manipulative activities such as computer games, board games, and using letter cubes. She was also motivated by high interest reading materials about subjects (rock stars) that she loved. These stories aided her in recalling facts.

Bridget also benefitted from the use of visual prompts (pictures) and brainstorming to develop written paragraphs. Another activity that aided Bridget's

writing and comprehension skills was learning to edit someone else's work. She had to critique it for the use of a main idea, adjectives, and overall structure. This was very motivational and helped her better understand what constituted a well developed paragraph.

Chris benefitted from a very structured environment. The task sheet aided his ability to stay on task and organize his time. He knew what was expected of him and what to do when he finished. He still needed a lot of guidance, verbal praise, and stickers to reinforce his behaviors.

Modeling and demonstration were necessary for all tasks. Kina writing improved spelling skills. This was taught to his parents so he could practice his weekly classroom spelling words at home. His parents reported a dramatic improvement. The classroom teacher worked closely with this teacher and the parents to help Chris work independently.

Doug reached mastery in marking context clues, adding and subtracting fractions and writing outlines. Modeling and demonstration was used successfully to explain a task then drill to practice the skill.

This teacher used the learning strategies for study skills as a guideline. Basically Doug needed to learn how to learn and the intense one-on-one combined with immediate feedback and positive verbal reinforcement seemed to motivate him.

Throughout the program it proved very beneficial to stay in contact with all the regular classroom teachers. In this way this teacher could evaluate the impact the program was making in the classroom. It was rewarding upon hearing that the students were making progress in their regular program as a result of new skills learned in this program.

This teacher improved her knowledge of organization and management 100 percent, and in academic methods 143 percent (Appendix J).

Although this teacher had some prior knowledge of precision teaching, methods, and materials due to previous course work, the actual implementation of the program combined with the inservice sessions proved to markedly increase this teacher's knowledge in all of the above mentioned areas.

This teacher feels confident in her ability to effectively remediate academic areas of weakness due to

the knowledge gained from this program, and the author is especially eager to use precision teaching with her students requiring additional motivation. Charting their own progress was very effective with all the students and helped them learn how to be rewarded intrinsically rather than extrinsically.

Chapter V

Recommendations

David needs continued work in learning and applying phonic rules. Short vowel key cards should be displayed when spelling new words. He needs to continue drill and practice on short vowel sounds until he reaches mastery. Kina writing should be used so David uses all his senses to aid in the recall of regular phonic material. Additional recommendations are continued work on developing correctly capitalized and punctuated sentences and paragraphs, with an emphasis on sentnece structure and the use of adjectives, and oral reading with grade appropriate material. David needs motivation so should be provided with successful experiences to help build his confidence.

Alex also needs continued work in decoding words. Again a multisensory approach is best and the learning strategies for word identification is a recommendation. Continued work on capitalizing and punctuating

sentences is necessary. Using comic strips for learning quotation marks, and making his own dialogue for comics may be motivational. Kina writing for both classroom spelling words and vocabulary words should be used. Alex needs a larger word bank to draw from to aid in his written work. Continue to use modeling, demonstration, drill, and practice for all tasks and follow with a high interest activity to help keep him motivated.

Bridget needs continued work primarily in comprehension. She has been working on literal comprehension of getting the facts. She should move on to interpretive skills of drawing conclusions and inferences. Bridget needs a guideline of what to look for as she reads to aid in the recall of facts.

Chris needs encouragement to complete activities independently. A response maze may act as an effective method to help him meet this goal. He needs additional work in all reading and language arts skills. This program focused on comprehension and writing skills. While working on these skills a weakness in his phonic and spelling skills was identified. It is recommended that the teacher step back to building a strong phonic

foundation, working back up to full words. Task analysis, breaking down skills into component parts, would also benefit Chris. Key cards, prompts, and cues will all be necessary for Chris.

Another technique called self-monitoring could be used with Chris. The child has a tape recorder with a low sound recorded at set intervals. When it beeps the child marks if he was on or off task. Since Chris is so motivated by the precision teaching charts this may serve as a motivator to keep him on task.

Doug was able to achieve academic success at grade level. He needs to continue to write down his assignments and have it checked daily at home and by school if necessary. If his school uses learning strategies, it is recommended that Doug be enrolled in the study skills program. Doug is a bright likeable young man who simply needs guidance on how to structure his learning environment.

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Appendix A

Sample Probes

ORANGE COUNTY PUBLIC SCHOOLS
PRECISION TEACHING PROJECT
ORLANDO, FLORIDA

see-say 3 min Bridge SA-4

Noun, Verb, Adjective Forms

50

happier	funniest	copies	makes	cherries	whitest	mixes	elves	8
stories	fishes	peaches	cuter	pasting	prettier	branches	claps	16
played	boxes	pianos	glasses	flatter	darker	sleeping	dishes	24
whipping	parties	pennies	smiles	mittens	smoked	finer	biggest	32
riper	baking	brushes	poked	thickest	robbed	dreamed	cleanest	40
driving	softer	radios	passes	stars	teaches	faster	swimming	48
hotter	wolves	batting	dropped	shelves	seals	dropped	robbed	56
whipping	claps	teaches	batting	happier	passes	stars	copies	64
cherries	mixes	flatter	smiles	swimming	branches	parties	dishes	72
cuter	brushes	thickest	mittens	prettier	pasting	shelves	whitest	80
glasses	makes	boxes	played	softer	riper	poked	radio	88
driving	darker	pennies	cleanest	funniest	elves	smoked	peaches	96
fishes	finer	biggest	sleeping	faster	baking	hotter	dreamed	104

Appendix A

Budget

M-9L

see-write 44c 2e

(thru X 9's)

51

8	3	6	4	8	8	1	0	7	6	0	5	5	2	9		
x4	x9	x3	x9	x7	x9	x9	x4	x9	x5	x9	x6	x9	x8	x8		
32	27	26 18	36	28	81	35	18	0	63	30	0	30	45	16	72	(30)

8	8	7	1	5	8	9	0	2	8	5	9	6	6	1	7	
x2	x7	x8	x9	x9	x8	x3	x0	x3	x9	x8	x5	x2	x9	x3	x3	
16	63	6	9	45	18	27	0	6	72	40	45	12	54	3	21	(57)

✓ 9	7	0	3	8	8	7	0	9	9	1	7	9	3	9	4	
x3	x4	x9	x8	x9	x7	x9	x8	x1	x7	x9	x9	x5	x6	x7	x3	
28	4	0	24	81		63	0	9	63	9	63	45	18	63	12	(84)

Appendix A

36c
2e

3	9	3	3	3	5	4	4	6	8	5	9	8	2	1	9
x5	x2	x1	x9	x2	x9	x2	x9	x9	x9	x3	x6	x3	x9	x8	x4
1															(112)

2	9	7	9	9	3	5	8	6	1	4	6	0	5	8	9
x5	x0	x6	x7	x5	x9	x4	x9	x8	x9	x7	x9	x4	x9	x5	x0
															(140)

58

59

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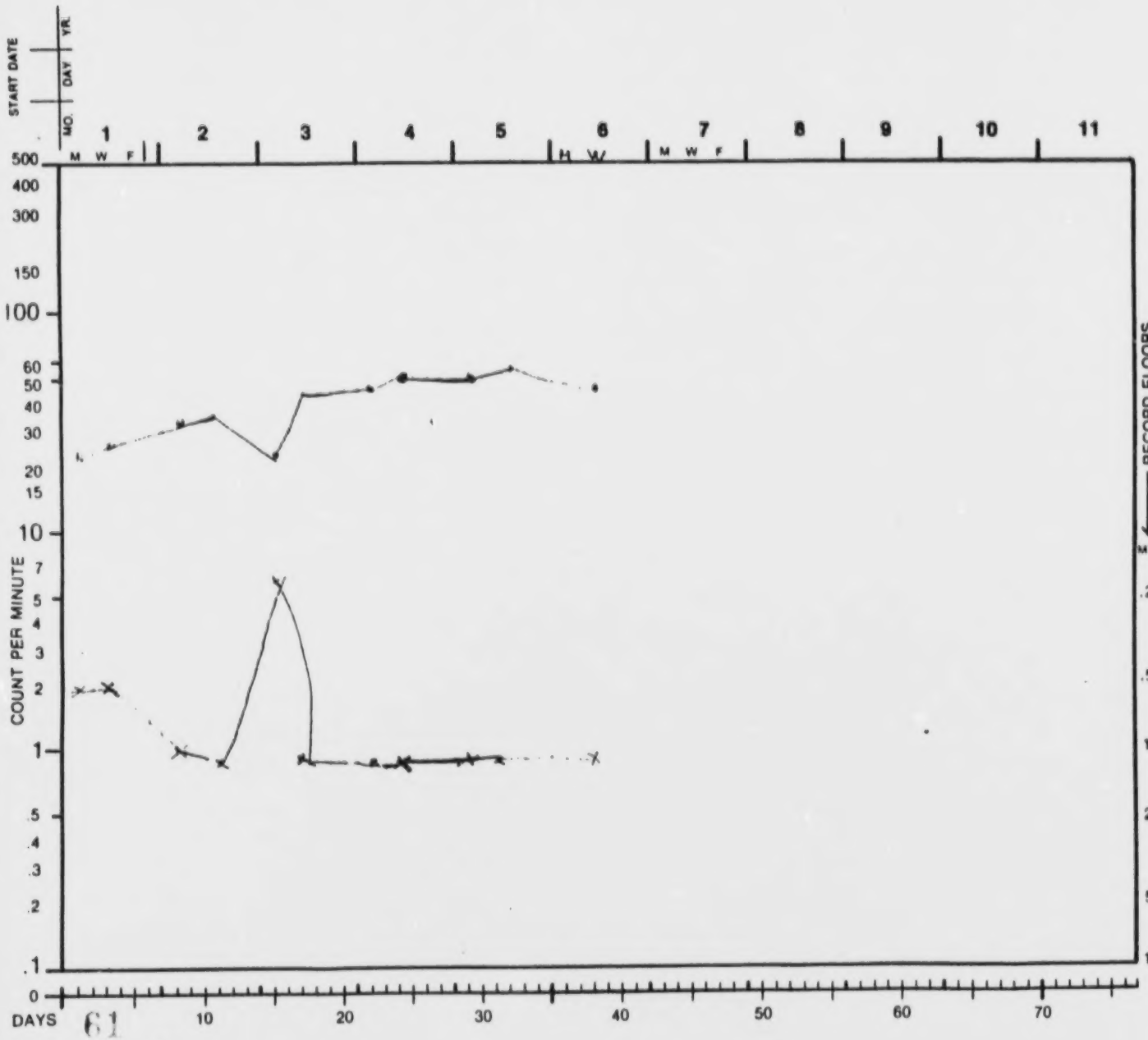
Appendix B

Logarithmic Charts



RECORD FLOORS

MINS

.2 .5 1 2 5 10

DATA

S	MON	TUE	WED	THUR	FRI	S
0c	0c		28c			
	2c		2c			
0c	0c		33c			
	1c		0c			
20c			42c			
	48c		50c			
	0c		0c			
	41c		50c			Appendix B
	6c		2c			
50c			54c			
	0c		0c			
	46c		45c			
	0c		0e			
						53

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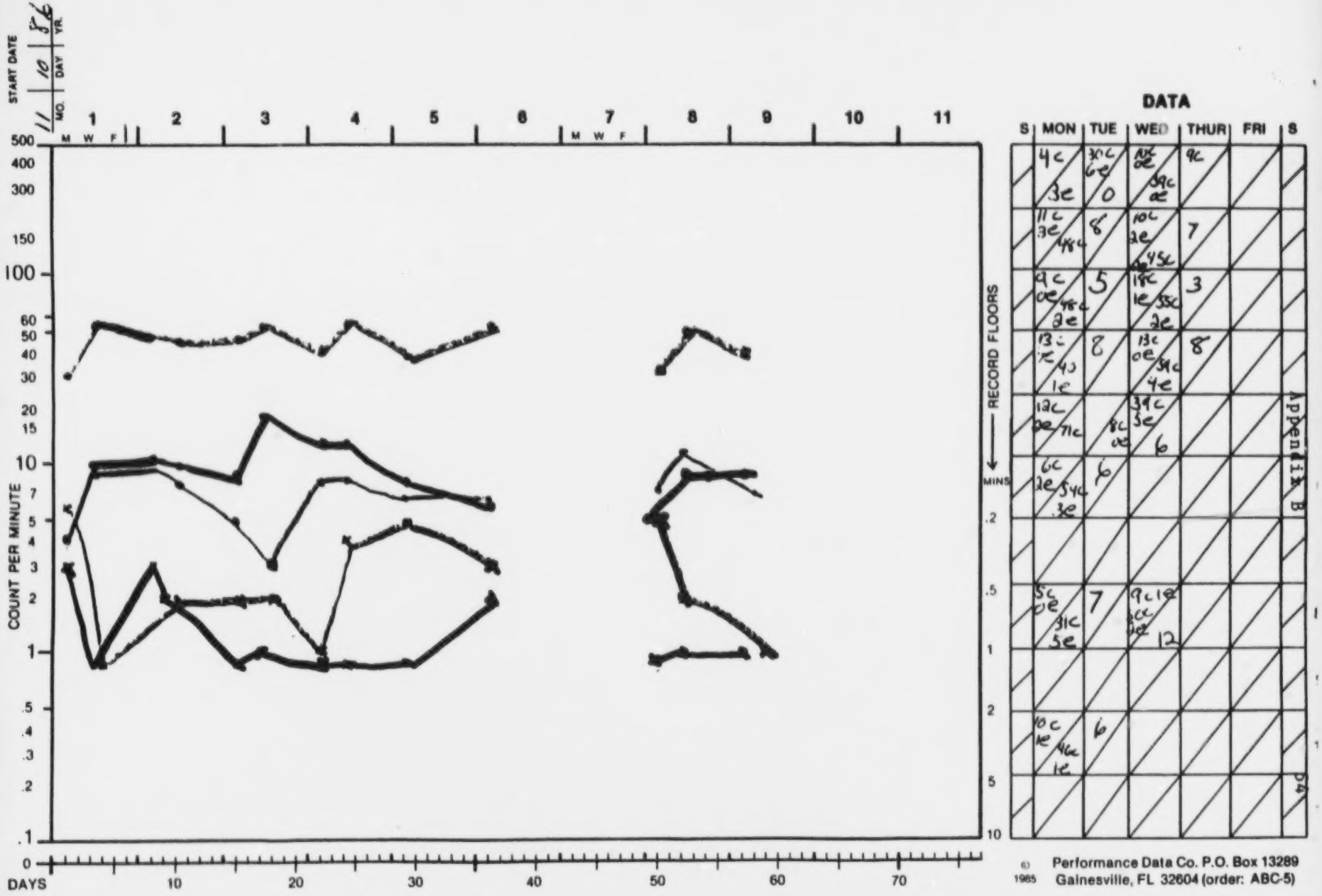
NAME

AGE



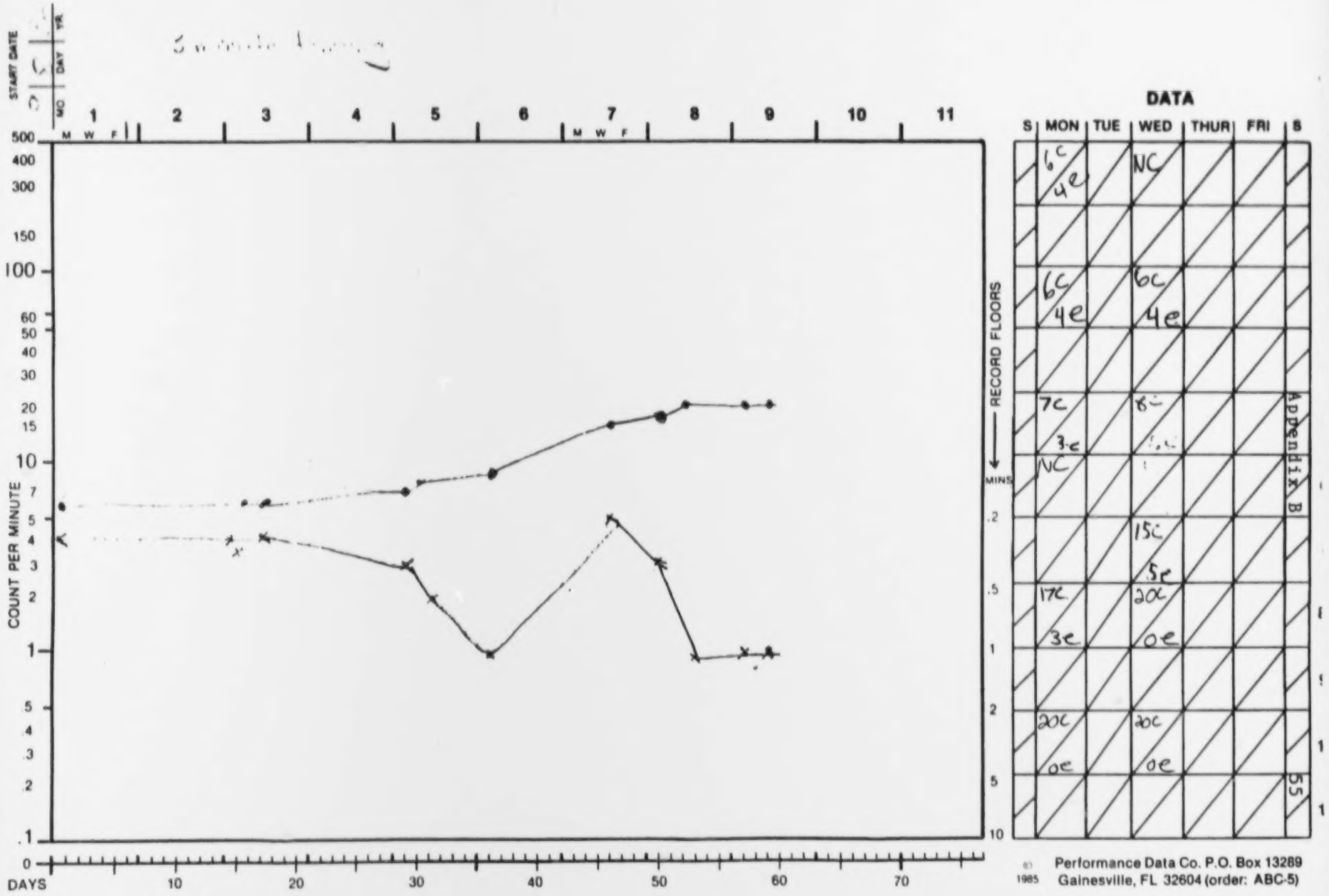
David 63

NAME

AGE

cap + punc •

cap + punc 24
spelling 60
Mrs Mackie decimals 10



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NAME

AGE

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Appendix C

Performance Standards

Appendix D

Task Sheets

NAME: Alex

DATE	TASKS	COMMENTS
Nov 12	1. ~~write to Read p. 6~~	
*	2. See picture write story	brainstorm first provide spelling words
	3. 5 minute spelling word drill	aim [illegible] spelling p. 5 [illegible] 3
*	4 Hear word spell (Dolch sight words)	aim 20
	5. Word Recognition Program p. 17 + 18 work on award	aw
*	6. Phonics puzzle	aim 7
	7. Nim - Rhymes + Reasons p. 114 - 1 min	
*	8 See story read same as above	aim 150
	9. Phonetic drill cards # 1, 7, 10, 11	
	11. Read Passage mark Response C2 multiple skills Unit 4	to difficult for him to understand

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Appendix E

Methods

WORD FAMILIES

The name of this program is word families. Some teachers find that certain children can do better in fixing the short sound of a given vowel if they see and pronoumce a series of words which contain larger identical units than the vowel alone: the words big, pig, dig, fig, or hill, fill, bill, pill are examples. This program uses the linguistic approach to teach spelling, reading and writing. It makes use of associative clues and is also color cued. Certain pre-requisite skills are needed. The child must know consonant and vowel sounds and letter name, and must have blending skills. The materials needed are index cards, glue, pictures, magic markers, and a letter box. (A letter box simply has all of the consonants and vowels on pieces of paper or cardboard. All of the letters are grouped individually in compartments for easy use as manipulatives.)

First, you will make a key card. Each child will make his own key card. To make a key card, you write the name of the word family in the center of the index card, leaving enough space on the left hand side of the card for adding initial consonants and blanks. The word family is color cued in red, and should be written so that the letters are spatially correct. In the top right hand corner, you either draw or cut out a picture that will represent the word family and serve as an associative clue for the child.

After the key card is made, a word building process begins. The child takes his key card and places it in front of him. He takes his letter box and picks out a consonant and places it in front of the word family directly onto the key card. He blends the initial consonant and the word family together and tries to make words. He writes the word on an index card and then turns over the card and draws a picture that represents the word on the back. Each day, he will follow this procedure and make a few flashcards. Each day, he will also take the words from the previous day--he will see the picture on the flashcard, say the word, write the word down on a sheet of paper, then turn over the flashcard and check to see if the spelling was correct. The results is a built-in spelling test!

When the child has finished one whole word family group, he then starts on another word family. When he has completed that gourp, he will work with the two groups together. He puts all of the flashcards from both groups together in a pile. He places both key cards in front of him. He picks up a flashcard, sees the picture, says the word, sorts the word to the appropriate word family key card, then writes the word, and turns the flashcard over and checks his spelling. He continues this process with the other word families he will work with also.

It is important that the child deals with the words he makes in context. He must read the words in context--a good series for this is the Merrill Linguistic Series. He can also write sentences using his word and trace the word family in red.

Theory: The key to writing and reading in cursive is the establishment of association between the printed and the cursive word. Through step-by-step kinesthetic: associative approach, the child conceptualizes and visualizes the cursive process as the printed form connected. In addition, it is important in heightening the visualization of words to aid recall of sight vocabulary, of spelling, of meaning vocabulary, or for phonics skills development.

Application:

Materials: 4 1/2 x 11" strips of white tagboard (kina-cards), grease marking pen or crayon, red pencil.

Procedure: Take words from any book in which the child is working which may need recall reinforcement.

Step #1 COPY each word, one word to a kina card, in red pencil. Proper and exaggerated spatial relations is needed to fully involve the child kinesthetically and to heighten his perception of the word configuration. (Copy about 5 words per lesson.) Check for accuracy of copy and letter formation.

Step #2 DRAW A PICTURE on the back of each card to illustrate the meaning of the word. Teacher or parent must check at first, for correctness and accuracy of meaning. Thinking, "Who, What, Where, When, Why, How" helps the student make his pictogram meaningful. (Comprehension check)

Step #3 CONNECT, using the crayon, each letter so the finished word appears in cursive form. (At first, teacher illustrates on the board using 2 chalk colors.) Careful guidance is needed at this step where directionality and eye-hand coordination problems may interfere with the child's execution of this stage.

Step #4 TRACE a word 3 times, with the crayon as the student says the word quietly but aloud: (Be sure he keeps his arm from resting on the table.
Freedom of movement as well as large movements is important.) then WRITE the word on the chalkboard with EYES CLOSED. Check the model. Retrace if incorrect. Do each word in turn.

Step #5 FILE words in shoe box, in abc order, for use as flashcards.

The instructions given in introducing the connective step are... "Swing up to where the letter begins when you print...(note that it is often necessary to correct the child's directionality by placing an arrow to remind him that all letters move from left to right as they are formed, and that we begin at the top of each letter. "

Always teach with words,never as letters in isolation. For some childred, it will be necessary to print his word for him until he has sufficient eye-hand control. For those with a figure-ground problem, color used for the printed word helps him be able to follow when he connects and traces. At first, avoid words with an r,s,f,z. These are the only letters which change from the printed form...

1. COPY each word, one word to a Kina card, in red pencil or crayon.
2. DRAW A PICTURE on the back of each card to illustrate the meaning of the word. Use a sentence and leave out the word if you can't draw a picture.
3. CONNECT, using the crayon, each letter so the finished word appears in cursive form.
4. TRACE word 3 times, with crayon as the student says the word quietly but aloud: (Be sure to keep your elbow from resting on the table.
5. WRITE the word on the chalkboard with your eyes closed. Turn your card over and check the model word. Retrace the word if it was misspelled. Do each word in turn.
6. FILE words in shoe box, in ABC order, use as flash cards to study for Fridays tests.

Step 7 Write definition on back of KINA card. To be used for flashcards on Friday.

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Educational Guidance Services
7200 S.W. 99th Terrace
Miami, Florida 33155

Using the Neurological-Impress
Remedial-Reading Technique *

R.G. Heckelman

In essence, the NIM is a procedure which calls for a multisensory approach in remedial reading.

The individual method consist fo the instructor and the student meeting for approximately fifteen minutes a day in consecutive daily sessions for a total of time ranging from eight to twelve hours. If this method is proving effective there is often a sharp rise in achievement at about the eighth hour of instruction.

The child is seated slightly in front of the instructor so that the instructor's voice is close to the child's ear. From the very first session the instructor and the student read the same material out loud together. It is generally advisable in the beginning sessions for the instructor to read a little louder and slightly faster than the student. There is some beginning difficulty at times. The student complains about not being able to keep up with the instructor, but the student is urged to continue nevertheless and forget about the mistakes he is making. Also, the instructor may have to slow down slightly to a more comfortable speed for the student. By re-reading the initial lines or paragraphs several times together before going on to new reading material. this discomfort on the part of the student is quickly overcome. The practice of re-reading lines, paragraphs, and pages over and over is not advised for those students who have audiointerpretive problems this method may have to be prolonged and augmented if the NIM is to be used successfully. In the initial sessions, the paragraphs or sentences are repeated several times until a normal fluid reading pattern is established. In most cases two or three minutes of repetitious patterning is sufficient.

He is told not to think of reading since we are training him to slide his eyes across the paper. The teacher says that he is not at all concerned with what the child does in terms of reading. At no time is any correction done with the child. When the instructor and the student read together, his finger simultaneously under the spoken words in a smooth, continuous fashion at precisely the same speed and with the same flow as his verbal reading. If desired, the student may later take over this function, alternating with the teacher in the use of the finger, the teacher may reach out and place his hand on the student's finger and guide it to a smooth flowing movement. Particular attention should be paid to the ends of the line where the finger should be made to move rapidly back to where the new line begins. It is a common habit for people not to move their fingers back rapidly enough. This can be likened to the speed of the typewriter carriage returning to position at the end of a line.

15 minutes a day. (1) Select readers below child's reading level

Teachers should be watched during their first sessions of using this method to see if they are able to synchronize their voices with their fingers. Many teachers have difficulty in doing this and they are not always aware that their voices and fingers are not operating together. For the purpose of the NIM it is absolutely essential that the finger movements, voice and words all be synchronized, because many childred do not read well due to a malfunctioning of the eye movements.

At no time during the reading instructions does the instructor interrogate the student or resort to any type of testing to determine whether the student is mastering the words either for word recognition or for reading comprehension. The major concern is with the style of reading rather than with reading accuracy.

This reading technique should be considered a part of an audioneural-conditioning process whereby the incorrect reading habits of the child are s uppressed and then replaced with correct, fluid reading habits.

Pacing is another extremely important aspect of the NIM, both in the individual and in the group setting. Pacing means that the material read should be periodically speeded up and the student is literally dragged to higher rates of speed in the reading process. This is done only for a few minutes at a time but probably should become a part of every instructional session. After two or more hours of instruction reading may at times be speeded up to the fastest speed at which the instructor can read out loud without discomfort. There are cases eventually words cannot be read clearly due to the tremendous speed that are obtained by the student and the instructor.

Another important aspect of the NIM- either group or individual is the material used. It is suggested that the starting material should be on a level slightly lower that the child is presently able to handle adequately. The most common mistake in using the NIM, is to sperd too much time at the lower levels of the child's reading ability. For example: in a twelve-hour session for a child of average intelligence in the eighth grade, he would be started at first or second grade level and by the end of the second hour be at the third grade reading level. At the end of the sixth hour he would probably be at the fifth or sixth-grade level and by the time he has finished the twelve hours he might possibly be as high as the seventh or eighth-grade level on reading exposure.

It is not important whether he has learned from this material or not. Over-exposure to difficult words is far better than under-exposure. One of the reasons for the success of the NIM seems to be due to the enormous exposure students have to words.. During an ordinary session of NIM reading lasting fifteen minutes the child may be exposed to as many as two thousand words. It is uncommon to cover ten to twenty pages of reading material in one session when using the elementary books. Too little exposure is more harmful than too much.

Reprinted from

ASSOCIA MATH MULTIPLICATION

PROCEDURE:

1. Each student should have a keycard with a set of correspondi: flashcards for each multiplication family of facts 2 - 9. The flashcards will each have a problem with the facts written vertically horizontally and with inverse relations.

2. The student will shuffle his flashcar-s, place his keycard on the left corner of his desk (if he is right-handed), turn over and see each flashcard, say the whole problem, write the whole problem and answer and check the keycard. see-say-write-check.

3. Give the student worksheets with the family of facts the student is working on. Use key cards as prompts.

4. Introduce another family of facts. Have the student shuffle both sets of flashcards. Now he sees the problem, says problem, sorts it to the appropriate keycard, writes it and checks his answer. see-say-sort-write-check.

5. Follow this by a worksheet.

6. Before adding another fact, the student should be able to see the problem and say the answer at 50 per minute.

7. Don't have the student sorting more than three facts at a time.

8. Always include previously learned facts on worksheets.

Vocabulary	Pre-requisite
equal	must know values of numbers as greater or less than

LEARNING STRATEGIES OVERVIEW

Learning Strategies: **Techniques, principles, or rules which enable a student to learn to solve problems and complete tasks independently.**

Learning strategy instruction focuses on both how to learn and how to effectively use what has been learned. The Learning Strategies Curriculum has been designed to enable students to cope effectively with curricular demands (for acquiring and memorizing large amounts of information and for demonstrating their knowledge and command of this information) and to teach them how to generalize skills to a variety of settings.

The Learning Strategies Curriculum consists of three instructional strands:

1. The Acquisition Strand - enable students to gain information from written material (i.e. textbooks, novels, technical manuals)

2. The Storage Strand - enable students to organize, store, and retrieve information

3. The Expression and Demonstration of Competence Strand - enables students to complete assignments, to effectively express themselves in writing, and to take tests

In order for a learning strategy to serve a student well, it must be learned to an automatic level. Students are taught to master task-specific learning strategies through much structured practice. The eight-step instructional procedure is as follows:

Step 1: Pretest and Obtain Commitment to Learn - use material comparable in difficulty level to materials with which the students must cope in the regular educational setting; inform students of strengths and weaknesses

Step 2: Describe - provide details of the strategy and advantages of using it; results that can be expected

Step 3: Model - demonstrate all of the steps while "thinking aloud" so that the students can witness all of the cognitive processes and overt behaviors involved

Step 4: Verbal Rehearsal - students learn to name the strategy steps at an automatic level; facilitates self-instruction and independence

Step 5: Controlled Practice and Feedback - provide students with ample opportunity to practice using the strategy at an instructional level; practicing on easier materials builds students' confidence and fluency in performing steps; provide immediate, specific feedback

Step 6: Grade-Appropriate Practice and Feedback - provide students ample opportunity to practice the strategy in regular course material; fade out prompts and cues; students analyze own performance; provide feedback

Step 7: Posttest and Obtain Commitment to Generalize - if goal is met, encourage an analysis of progress and obtain a commitment to use the strategy in a variety of settings

Step 8: Generalization - Orientation Phase - make students aware of situations in which new strategy can be used; Activation Phase - give students practice in using strategy in a variety of settings; Maintenance Phase - periodically check to see if students are using the strategy appropriately

Taken from Learning Strategies Curriculum, Don Deschler

Appendix F

Interest Inventory

SPRINGFIELD INTEREST FINDER

NAME Bridget DATE GRADE

My three wishes For my 1 I would to [illegible] and I could do it

What I'd like to learn more about at school [illegible]

What I don't care to study about [illegible]

What I like best in school [illegible]

What I like least or dislike most at school [illegible]

What I like best outside school [illegible]

What I want to be or do when I grow up [illegible]

The most interesting thing I have done at school during the past week or so [illegible]

One of the places I especially like to go in [illegible]
(name of city)

One of the happiest days in my life [illegible]

The three best friends in my room at school are (boys or girls) [illegible] Brian

What did you do over the weekend? [illegible]

What tools do you have at home?

Which TV programs do you like best: comedy, sad serial, gangster, western, news, or mystery? [illegible]

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Appendix G

Key Cards

Key Cards Used For Brainstorming from a picture of a camp fire

WHO

boy
girl
son
daughter
sister
friend

WHAT

Camping
a fire
sticks
tent
lantern
stove
food
equipment
sleeping bag
blanket
light

WHERE

in the woods
at a campground
in the country
in front of a tree
under the stars
on the ground

WHEN

at night
in the summer
late
after supper
on Saturday
at ten o' clock

WHY

because they were cold
since they had no heat
because they were hungry
because they were lost
due to a lack of fuel

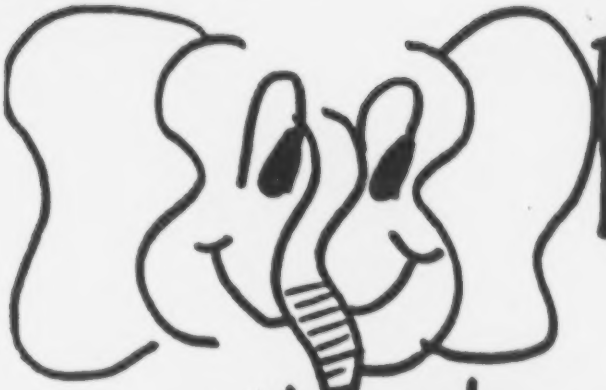
HOW

they drove
they hiked
they walked
traveled long distances
learned at boyscouts

Short Vowel Key Cards

a

apple

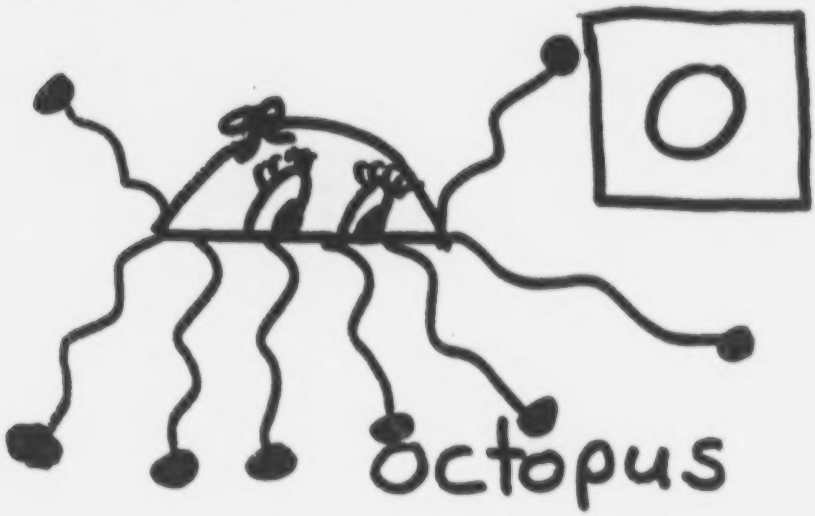


e

elephant

i

indian



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Appendix H

Contract

I Chris [redacted] agree to to my homework every day after school from 3 pm to 5 pm. I will color in a square for each subject I complete on my own. At the end of week one I will have done 3 out of 5 days on my own. If I do this I will go out for pizza

.

At the end of week two I will have done all of my homework independently 4 out of 5 days. If I do this I will get new sporting kids

At the end of the third week I will be doing all of my homework every day. If I do this I will get a GI Joe

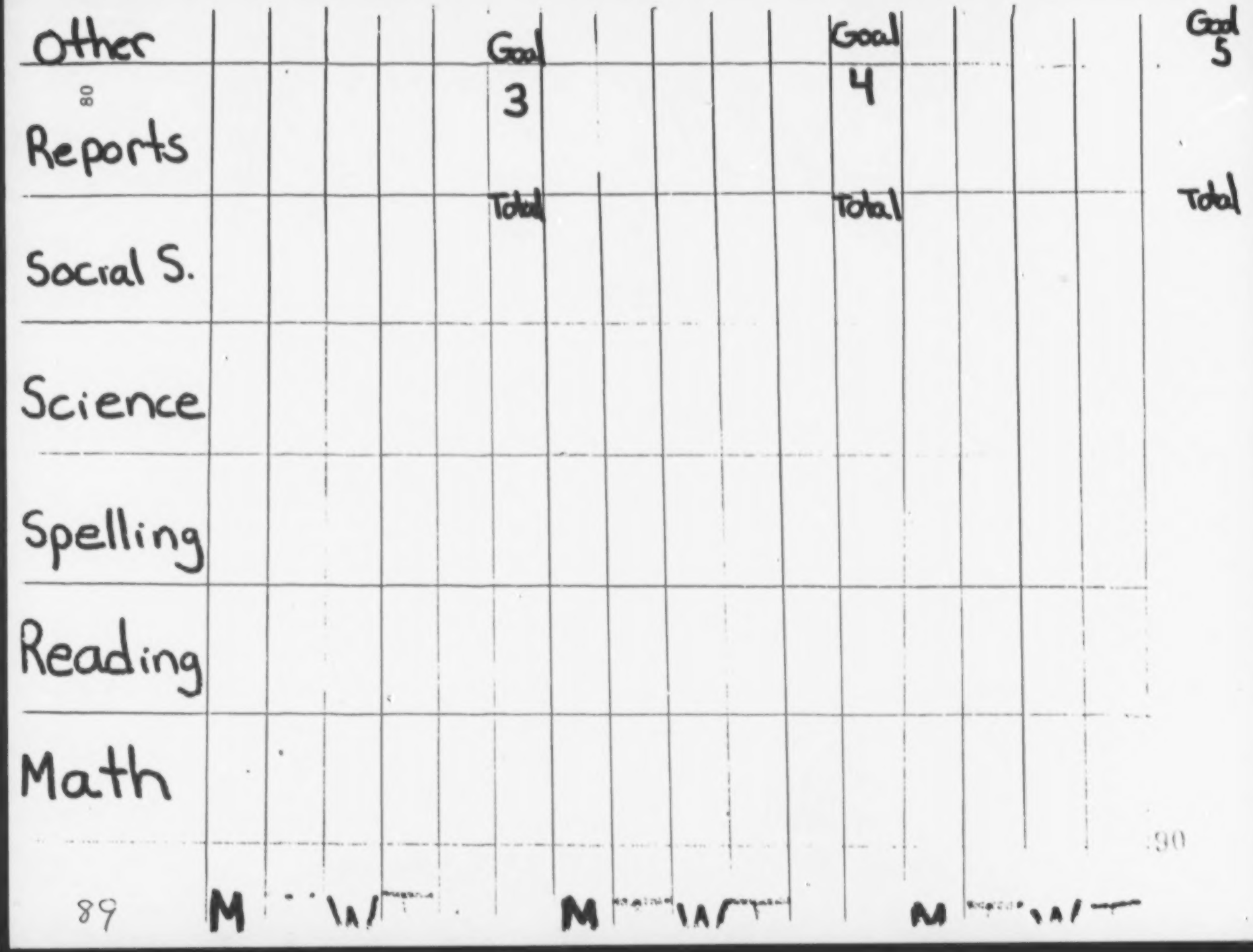
Signed _____

If I do not complete a subject on my own I will lose two garbage cards.

If during a week I have lost 10 or more cards, I will not receive pizza on Saturday.

Also I may call my mother once in hour unless it is a REAL emergency. Every time I call over that I will lose two 2 more cards.

Signed _____


Other
Goal
3
Goal
4
Goal
5
Reports
Total
Total
Total
Socral S.
Science
Spelling
Reading
Math
80
30
89
M
M
M

Chris

Number of cards lost

Appendix H

81

10
9
8
7
6
5
4
3
2
1

M T W T F M T W T F M T W T F

91

92

Week 1 _____ Week 2 _____ Week 3 _____

Appendix I

Student Profile Charts

Doug

SKILL	CRITERIA	BEGINNING PERFORMANCE CORRECT	BEGINNING PERFORMANCE ERRORS	ENDING PERFORMANCE CORRECT	ENDING PERFORMANCE ERRORS	% GROWTH
See Picture--Write Story	30	6	0	11	0	83
Capitalization & punctuation	60-80	74	0	92	0	24
Spelling	10	6	0	19	0	216
Describing Words	5 min					
Read Passage--Mark Context Clue Level G	20 1 min	4	1	20	0	400
See Problem--Change decimal to fraction, to percent form	70-90 3 min	20	0	31	0	55
See Mixed Fraction--Write Addition and Subtraction Facts	70-90 3 min	33	0	114	0	245
See Outline Form--Write Missing Parts	30 3 min	6	1	30	0	400

David

SKILL	CRITERIA	BEGINNING PERFORMANCE CORRECT	BEGINNING PERFORMANCE ERRORS	ENDING PERFORMANCE CORRECT	ENDING PERFORMANCE ERRORS	
See Picture/Write Story						
5 Minute timing						
Capitalization and punctuation	24	4	3	10	1	150%
Spelling	60-80	30	6	50	2	66%
Describing Words	10	0		12		
	5 min					
Story/Read						
minute						
...ch the Wind	150	85	2	152	0	788%
	3 min					
Hear Words/Spell						
from Catch the Wind						
one minute	80 letters	40	2	97	0	142%
	1 min					
See Story/Capitalize and Punctuate Correctly						
3 minutes	60	48	8	54	4	12%

Budget

		CORRECT	ERRORS	CORRECT	ERRORS	
See Picture--Write Story (based on 5 minutes)						
Punctuation & Capitalization	24	10	15	22	4	122
Spelling	60-80	54	0	84	4	55
Describing Words	10	1	0	14	0	1300
	5 min					
See Fact-Mark Product	50-70	5	4	44	2	780
	3 min					
Read Passage--Mark Context Clue Level D	20	6	4	15	5	150
	3 min					
Read Passage--Mark Main Idea Level D	5	3	2	5	0	60
Read Passage--Mark Conclusion Level D	10	4	1	5	0	25
	3 min					

NAME: Chris

SKILL	CRITERIA	BEGINNING PERFORMANCE CORRECT	BEGINNING PERFORMANCE ERRORS	ENDING PERFORMANCE CORRECT	ENDING PERFORMANCE ERRORS	
See Picture/Write Story	30	10	5	20	0	100%
Capitalization and Punctuation	60	36	3	60	4	66%
Spelling	10	2		2		0
	5 min					
See Multiplication Fact/Mark Product	70-90 digits	26	2	54	0	107%
	3 min					
Hear Words/Spell (Dolch)	80-100 letters	67	2	76	0	13%
	3 min					
Read Passage/Mark Fact Level D, Unit 2	10	5	2	9	1	80%

Alex

SKILL	CRITERIA	BEGINNING PERFORMANCE CORRECT	BEGINNING PERFORMANCE ERRORS	ENDING PERFORMANCE CORRECT	ENDING PERFORMANCE ERRORS	% GROWTH
See Vowel Digraph Words/Say	60 5 min	6	2	14	0	133%
Hear Dolch Words/Spell	15-25 Words per minute	14	5	18	0	28%
See Words/ Say (Word Families)	60 3 min	50	4	60	0	20%
Read Paragraph/Edit Capitalization and Punctuation	32 3 min	11	3	24	3	118%

Appendix J

Pre/Posttest

Study Guide

Appendix J

ORGANIZATION AND MANAGEMENT
Pre/Post Test

92/30/31 = (97%)

7/7 1. List different ways of doing timings. Group, individual, peer, self
List different instruments that can be used. grocery counter, egg timer, stop watch, clock, second hand on a watch,

1/1 2. Precision teaching and behavior modification are synonymous procedures. True/False

4/4 3. Under what circumstances does one make a phase change?

a). when no progress is noted
b). upon attaining mastery

How are phase changes indicated on a chart?

a). By a dark line drawn vertically before the change
b). by writing it on the chart (the change)

4/5 4. List ways to select instructional targets (pinpoints). pre-test, probes,
6/6 5. talk to teachers and parents, observation, minimum basic skills for that grade
Define:

a). response maze
b). key cards
c). response cost
d). metacognition
e). generalizing
f). transfer of training

4/4 6. List some natural and contrived consequences.

Natural praise, smiling, a pat on the back, Contrived stickers, candy, tokens

4/4 7. Name four purposes of task sheets. It helps the student know what to do. It aids the teacher in planning. It can be used for comments to aid in record keeping. It frees the teacher to work with other students. it helps the students work independently and involves them actively rather than asking the teacher what to do next.

a. student works through a maze for each correct response to obtain a reward. Every time they perform the response they color in a square etc.

b. are prompts They are visual clues used to get a desired response. ex vowel key cards are set out so the child can refer to them to sound out a word correctly.

c. a program is set up where a response (behavior or verbal or written) response that is not acceptable costs you something. Ex not staying on task costs you a sticker

d. its awareness of how you learn. For ex I'm a visual learner. I know how I learn best.

e. Using a skill at a higher level than completion to maintain

f. using the skill in a variety of settings or the response

Judy Meister

ACADEMIC METHODS
Pre/Post Test (continued)

3/3 17. Direct continuous monitoring is based on the motion that what is taught should be measured. Discuss.

6/6 18. Sam is learning to recognize long vowel patterns.
Five days of data collected for see long vowel words-say, reveal this pattern no progress
For each category listed below name the changes that can be made to improve performance.

A general setting: the room, the grouping (how many in the group) the
B methods/materials:
C objectives (skills):
D schedules of reinforcement:
E consequences:

4/4 19. Describe a situation in which each of the following decision rules might be applied.

a) step up back to a different skill if division is too hard step back to multiplication
b) slice back ~~In reading to ... level D in comprehension~~ too hard go back to Level C
c) leap up master a skill leap to new skill multiplication to division
d) multiple timings If there were too many distractions, if the child asked for a second timing. ~~If the student~~

10/10 20. Define learning strategies. Describe the instructional procedures used. Is teaching students how to learn. It gives them strategies for learning a skill. For example in word identificat it gives rules for dissecting words. The student learns the rules and

17. It needs to be measured so the student and teacher can see progress being made. If progress isn't being made it aids the teacher in planning by showing who needs remediation in what areas. It needs to be continuous so the slow one isn't left behind and the faster learner isn't doing a mastered skill over and over.

18. A - time of day, lighting, temperature, distractions
B more hands on, more key cards, ~~[illegible]~~ with words on them, have him make up words that have those sounds. make up ~~[illegible]~~ mnemonic saying like a says ay as in e says ee they're as nosey as can be etc.
C slice back to a smaller amount, step back to a lower skill ~~[illegible]~~ make sure he knows the consonant sound and how to blend sounds together
D. make it shorter every activity, every ten minutes ~~[illegible]~~
E. change from natural (smile praise) to contrived (candy stickers

F ~~[illegible]~~ the word ~~[illegible]~~ long vowel in it. use flashcard

ACADEMIC METHODS
Pre/Post Test (continued)

2/3 17. Direct continuous monitoring is based on the notion that what is taught should be measured. Discuss. often we teach a task and just move on & there only tested once a month or so then & the

5/6 18. Sam is learning to recognize long vowel patterns. Five days of data collected for see long vowel words-say, reveal this pattern. ——— For each category listed below name the changes that can be made to improve performance.

general setting:
methods/materials:
objectives (skills):
schedules of reinforcement:
consequences:

3/4 19. Describe a situation in which each of the following decision rules might be applied.

a). step back?
b). slice back?
c). leap up ✓ st for copy ex:?
d). multiple timings?

17. haven't mastered the task we move on. Knowing and they've missed it so what we teach we should test to see if it's mastered

Study Master

Appendix J

15/31 94 (48%)

ORGANIZATION AND MANAGEMENT
(Pre)/Post Test

3/7 1. List different ways of doing timings. by 1 min, 3 min, 5 min
List different instruments that can be used. stop watch, clock, [illegible], timer egg timer

1/1 2. Precision teaching and behavior modification are synonymous procedures. True/False

3/4 3. Under what circumstances does one make a phase change?

a). If the chart shows little or no progress
b). If the chart shows the [illegible] mastered

How are phase changes indicated on a chart?

a). a long dark vertical line
b).

2/5 4. List ways to select instructional targets (pinpoints). Pre-test, grade probes, use minimal basic skills sheets

2/6 5. Define:

a). response maze
b). key cards
c). response cost
d). metacognition learning how to learn
e). generalizing learn a skill and use in a broader setting
f). transfer of training [illegible] learned in other settings

2/4 6. List some natural and contrived consequences.

Natural praise
Contrived tokens,

2/4 7. Name four purposes of task sheets.

To help organize the child
To make the child more responsible [illegible] and materials

ACADEMIC METHODS
Pre/Post Test

1/2 1. What is precision teaching? ✓
a method of monitoring a student's progress

2/2 2. What is a norm-referenced test? For what purpose(s) is it used?
A test that compares a students performance to his/peers Screening, identification

1.5/2 3. What is a criterion-referenced test? For what purpose(s) is it used?
A test that compares a student to a set criterion for passing - placement.

1.5/3 4. What is timing? Why do we do timings daily?
To check fluency as well as accuracy - To see progress or lack of

1/1 5. Precision teaching refers to a specific method of instruction.
True/False

2/2 6. Vertical lines on the logarithmic chart represent days.
Horizontal lines on the logarithmic chart represent the number of errors or correct

3/4 7. How is frequency or rate of responses computed? # c/time # e/time
How is it different from percent? percent is # c/total possible x 100
it doesn't show errors

2/4 8. What does mastery or proficiency mean?
The child knows the skill consistently, effortlessly, efficiently and can transfer the skill to other settings

3/3 9. How can we determine the minimum performance that would be indicative of mastery? Use National standards, compare the child to the perf of the peer who seems to do well at that skill, at time an adult and divide by 2/3

1/2 10. Why is time included as an element to measure proficiency? Because one can be accurate but take a long time to do a skill say using fingers, in math so time is imp.

0/2 11. What is the formula for determining a 30% improvement for a skill (based on 5 days of data collected)? I don't know

2/2 12. A student is reading at a 2.1 level with 76 words correct and 2 errors within 2 minutes. What is the frequency correct? What is the frequency of errors. 38 c/m 1 e

0/4 13. What does NIM stand for? Didn't know before supermarks
What is the purpose(s) for utilizing this method?

3/4 14. Explain the 4 uses of kina writing? Kina writing can be used for sight words spelling, vocabulary and reading

2/4 15. Discuss the options available to a teacher when a child is not making adequate progress on a skill. change the skill to an easier skill or change the methods of instruction

6/10 16. Describe how each of the following techniques can be used:

a). VAKT
b). prompts
c). associative clues
d). demonstration
e). drill
f). modeling
g). molding
h). manipulatives
i). color-coding
j). match to sample

a. can be used in kina writing the involve all the senses, perhaps the child can't learn through just one modality so a visual auditory kinestetic Tactile approach can help

b. -

c. -

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e. for math facts it should be quick 5 minutes at a time and frequent ✓

f. -

g In handwriting you hold your hand over the childs and guide his hand. ✓

h In math young children need to learn with concrete objects. blocks, pegs etc. before abstract. ✓

i In math it's helpful to color code the different facts so they can j match to the sample card j or in writing make sky letters blue, t d, f grass letters green a c e and root letters brown g p q ✓

to match to sample you provide the finish product, say a map and the student would fill in another map by matching to the sample

Judy Mesler 1/27/87

Appendix J

90

73.5/74 = 99%

ACADEMIC METHODS
Pre/Post Test

2/2 1. What is precision teaching? Is a method of monitoring progress and used for accountability the teacher can make changes in methods materials and timings by continually monitoring the students progress.

2/2 2. What is a norm-referenced test? For what purpose(s) is it used? At norm-referenced test is standardized on norms obtained from a peer group the students is tested against a certain group and the scores which become norms that

2/2 3. What is a criterion-referenced test? For what purpose(s) is it used? A student is compared to a standard or mastery. Teacher made tests are criterion referenced the teacher designs what the mastery will be. They

3/3 4. What is timing? Why do we do timings daily? Is a brief sampling of a task. we do them daily to get a continuous measurement (or progress) so we can make changes if there is no

1/1 5. Precision teaching refers to a specific method of instruction. True/False

2/2 6. Vertical lines on the logarithmic chart represent Errors.
Horizontal lines on the logarithmic chart represent number of correct responses and errors per minute.

4/4 7. How is frequency or rate of responses computed? # c/time ≠ e/time
How is it different from percent? percent does not take the rate of response into account. Percent is based on 100. Frequency is

4/4 8. What does mastery or proficiency mean? It means to know a skill and demonstrate it effortlessly and efficiently with speed and accuracy not

3/3 9. How can we determine the minimum performance that would be indicative of mastery? we can use nationally standardized norms, or base it on the performance of a competent peer or test an adult in that skill

2/2 10. Why is time included as an element to measure proficiency? Because speed is important you can be accurate in a skill but very

1.5/2 11. What is the formula for determining a 30% improvement for a skill (based on 5 days of data collected)? Multiple the last correct response by 1.30

2/2 12. A student is reading at a 2.1 level with 76 words correct and 2 errors within 2 minutes. What is the frequency of errors. 2 wpm 76 38 correct | error

3/4 13. What does NIM stand for? Neurological impress method
What is the purpose(s) for utilizing this method? It is used to build fluency in reading and to increase their exposure to words

4/4 14. Explain the 4 uses of kina writing? sight words, spelling, handwriting and vocabulary

4/4 15. Discuss the options available to a teacher when a child is not making adequate progress on a skill. Change the enabling activity (method + materials) change the timing 5min to 3min change the objective by

10/10 16. Describe how each of the following techniques can be used:

a). VAKT
b). prompts
c). associative clues
d). demonstration
e). drill
f). modeling
g). molding
h). manipulatives
i). color-coding
j). match to sample

111

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2. grades received. They are used for placement

3. Are use for program evaluation and planning

4. progress being made or if the student mastered the skill. If we didn't do them daily we might miss the progress or lack of.

8. and to be able to generalize and transfer the skill to other settings

9. at then divide by 2/3 or we can choose based on what we (teacher) consider the mastery of the skill we are teaching. i.e. if I make a probe with 6 items mastery would be 6C

16 slow. For example a student who uses his fingers might be very accurate but slow and not have the skill mastered. He needs accuracy and speed.

15. slicing back, stepping back, leaping up change the reinforcer (stickers to flashcards) change the rate of reinforcement (every activity instead of the end of the day

16 (a) Kina writing is VAKT visual, auditory, tactile(?) kinesthetic and can be used for handwriting

(b) In comprehension the teacher can prompt for a response by saying How, Who, what, when etc.

(c) A b and d can be left at the top of the page to help the student remember

(e) Fast, frequent short good for memorizing math facts

(f) show the child how to draw a square then leave a sample to guide them

(g) Hold your hands over the child's to tie their

(h) use little blocks when learning how to add

(i) color who, what, when, why, where words differently in a passage read to aid in comprehension

(j) Assist with math